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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|----------------------------|-------------|----------------------|---------------------|------------------|
| 10/676,185 | 09/30/2003 | Hoo Y. Chung | 758.1149USD3 | 7098 |
| 23552 | 7590 | 09/08/2004 | EXAMINER | |
| MERCHANT & GOULD PC | | | GREENE, JASON M | |
| P.O. BOX 2903 | | | ART UNIT | PAPER NUMBER |
| MINNEAPOLIS, MN 55402-0903 | | | 1724 | |

DATE MAILED: 09/08/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/676,185

Applicant(s)

CHUNG ET AL.

Examiner

Jason M. Greene

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) 145-179 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 145-179 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 12/22/03.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: ____.

DETAILED ACTION

Specification

1. The disclosure is objected to because pages 47 and 49 of the Specification have been written on in landscape orientation rather than in portrait orientation. See 37 CFR 1.52(a)(iii). Appropriate correction is required.
2. The Examiner suggests Applicants update the status of the parent application in the first sentence of the specification. Application Serial Number 09/871,583 issued as US Patent No. 6,743,273 B2 on June 1, 2004.

Claim Objections

3. Claims 146 and 164 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s) or amend the claim(s) to place the claim(s) in proper dependent form. Claims 146 and 164 recite the layer retaining greater than 50% of the fiber. However, claims 145 and 163, from which claims 146 and 164 respectively depend, already require the layer to retain greater than 50% of the fiber unchanged.

Claims

4. With regard to claims 150, 159, 168, and 177, the Examiner has assumed the limitation "wherein the fiber size is 0.1 to 0.2" as meaning 0.1 to 0.2 microns. If this assumption is correct, the Examiner suggests Applicants insert the word "microns" at the end of the claim to improve the clarity and precision of the claim language.

5. With regard to claims 154 and 172, the Examiner has assumed the fine fiber layer efficiency to be filtration efficiency. If this assumption is correct, the Examiner suggests Applicants change the phrase "the fine fiber layer efficiency" in line 3 to read as "the fine fiber layer filtration efficiency" to improve the clarity and precision of the claim language.

6. With regard to claims 155-157 and 173-175, the Examiner has interpreted the limitations as relating to the fine fiber layer efficiency. If this interpretation is correct, the Examiner suggests Applicants insert the phrase "of the fine fiber layer filtration efficiency" at the end of the claims to improve the clarity and precision of the claim language.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 145-179 are rejected under 35 U.S.C. 102(b) as being anticipated by Kahlbaugh et al. '399.

Kahlbaugh et al. '399 discloses a fine fiber layer comprising a fiber having a diameter of about 0.1 microns in Fig. 7, col. 3, lines 27-64, and col. 16, lines 20-64.

Kahlbaugh et al. '399 does not explicitly disclose at least 50 percent of the fine fiber remaining unchanged or the layer retaining greater than 30 percent of the fine fiber layer filtration efficiency after exposure to air at 140 °F or greater than 160 °F and 100 percent relative humidity for 1 to 16 hours.

However, both Applicants and Kahlbaugh et al '399 disclose forming the fine fiber from the same materials. Specifically, Applicants teach forming the fine fiber layer from polypropylene, polyvinyl chloride (PVC), cellulose ester, polyacrylonitrile, polyamides, polystyrene, polyvinylidene fluoride, polyvinylidene chloride, or nylon in page 14, line 7 to page 16, line 17. Kahlbaugh et al. '399 teaches forming the fine fibers from identical materials in page 16, lines 53-64. Since Applicants and Kahlbaugh et al '399 both teach the fine fiber layer being formed from the same material, the fine fibers of Kahlbaugh et al. '399 would inherently have the same heat and humidity resistance properties as the fine fibers of the present invention.

Furthermore, Kahlbaugh et al. '399 explicitly teaches forming the fine fibers from glass in col. 16, lines 48-55. Since glass fibers have a very high melting point and are inert with respect to water vapor, one of ordinary skill in the art at the invention was made would have expected the fine glass fibers of Kahlbaugh et al. to exhibit the recited resistance properties.

Additionally, Kahlbaugh et al. '399 also explicitly teaches forming the fine fibers from polycarbonate and polyacrylonitrile in col. 16, lines 56-64. Since polycarbonate and polyacrylonitrile both have high melting points and are resistant to hot, humid environments, one of ordinary skill in the art at the time the invention was made would have expected fine fibers formed from polycarbonate or polyacrylonitrile to exhibit the recited resistance properties

Since the prior art discloses specific examples lying within the claimed ranges of the fine fiber having a diameter of 0.01 to 0.5 microns, 0.01 to 0.2 microns, and a diameter of 0.1 to 0.2 microns, these limitations are anticipated.

Conclusion


9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason M. Greene whose telephone number is (571) 272-1157. The examiner can normally be reached on Monday - Friday (9:00 AM to 5:30 PM).

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on (571) 272-1166. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jason M. Greene
Examiner
Art Unit 1724


9/4/04

jmg
September 4, 2004